1. For the network of Fig. 1:
   (a) Determine Z_i and Z_o.
   (b) Find A_v and A_i.
   (c) Repeat part (a) with r_o =20 kΩ.
   (d) Repeat part (b) with r_o = 20 kΩ .

2. (**Report**) For the network of Fig. 2, determine V_{CC} for a voltage gain of A_v = -200.

3. For the network of Fig. 3:
   (a) Determine r_e.
   (b) Calculate Z_i and Z_o.
   (c) Find A_v and A_i.
   (d) Repeat parts (b) and (c) with r_o = 25 kΩ.

4. For the network of Fig. 4:
   (a) Determine r_e.
   (b) Find Z_i and Z_o.
   (c) Calculate A_v and A_i.
   (d) Repeat parts (b) and (c) with r_o = 20 kΩ.

5. (**Report**) For the network of Fig. 5, determine R_E and R_B if A_v = -10 and r_e = 3.8 Ω. Assume that $Z_b = \beta R_E$

6. For the network of Fig. 6:
   (a) Determine r_e.
   (b) Find Z_i and A_v.
   (c) Calculate A_i.

7. (**Report**) For the network of Fig. 7:
   (a) Determine Z_i and Z_o.
   (b) Find A_v.
   (c) Calculate V_o if V_i = 1 mV.

8. For the network of Fig. 8, determine A_v and A_i

9. For the collector FB configuration of Fig. 9:
   (a) Determine r_e.
   (b) Find Z_i and Z_o.

(c) Calculate A_v and A_i.

10. (**Report**) Given r_e =10 , β= 200, A_v = -160, and A_i = 19 for the network of Fig. 10, determine R_C, R_F, and V_{CC}.

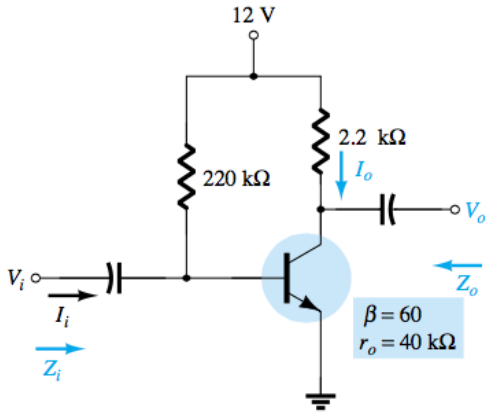

Fig.1

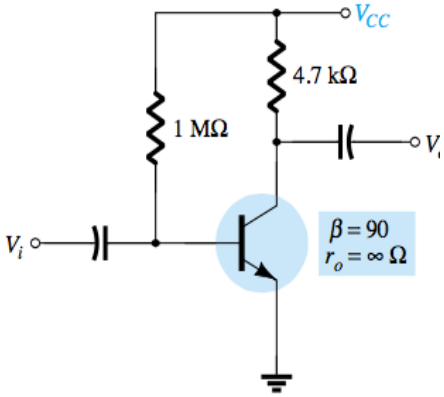

Fig.2

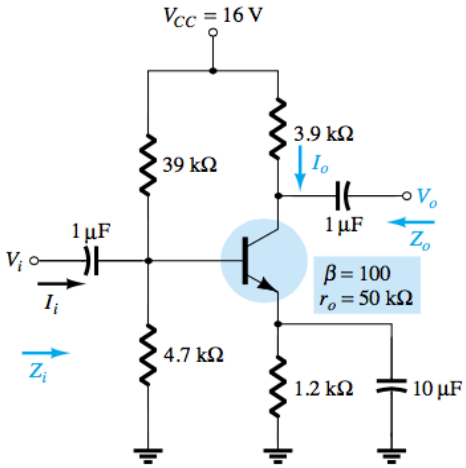

Fig.3

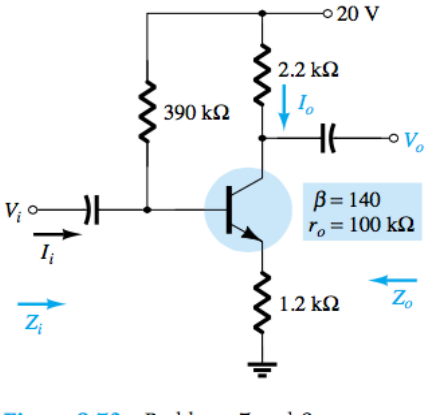

Fig.4

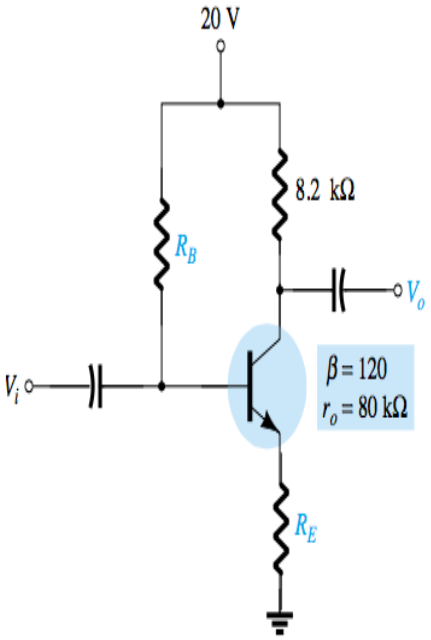

Fig.5

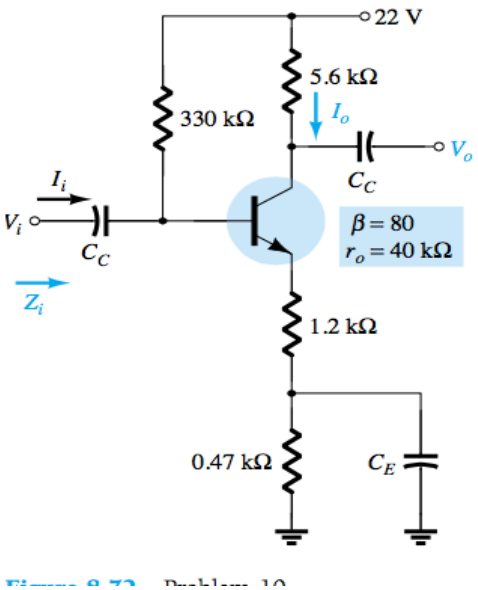

Fig.6

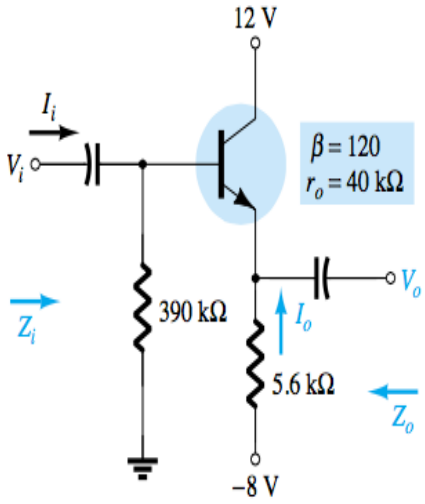

Fig.7

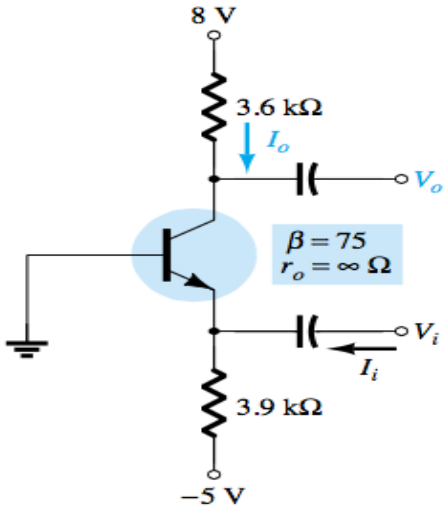

Fig.8

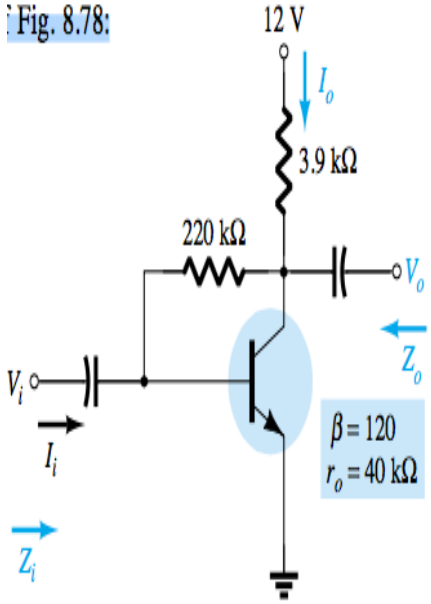
Fig. 8.78:
12 V
I_o
3.9 kΩ
220 kΩ
V_o
Z_o
V_i
I_i
$\beta = 120$
$r_o = 40$ kΩ
Z_i

Fig.9

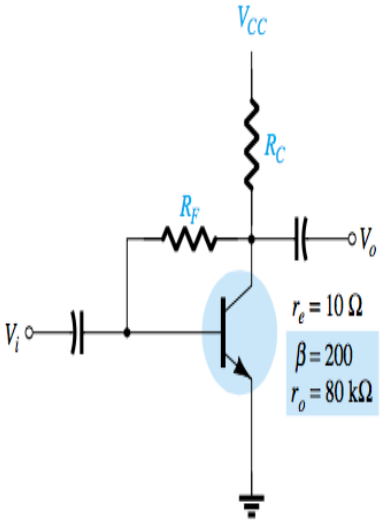
V_{CC}
R_C
R_F
V_o
V_i
$r_e = 10\ \Omega$
$\beta = 200$
$r_o = 80$ kΩ

Fig.10